



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,712	03/10/2004	Karsten Heuser	12406-083001 / P2003,0150	5002
26181 7590 07/07/2008 FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022				
EXAMINER				
SMITH, FRANCIS P				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
07/07/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/798,712

Applicant(s)

HEUSER ET AL.

Examiner

Francis P. Smith

Art Unit

1792

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 4, 5, 8, 9 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 10-15 and 17-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 3/10/2004
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species 1a, 2b, and 3a, corresponding to claims 1-3, 6, 7, 10-15, 17-27 in the reply filed on May 27, 2008 is acknowledged. The traversal is on the ground(s) that the species 3a and 3b are embodiments of forming a second barrier layer at the new nucleation side, which is used with at least one of the species 1a, 1b, 2a, or 2b. This is not found persuasive because the identified species are mutually exclusive embodiments that require different search queries, and hence, creates a burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 4, 5, 8, 9, and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected species, there being no allowable generic or linking claim.

Specification

3. Claim 27 is objected to because of the following informalities: Lines 5-6 and 8 recite "second nucleation sites" and should apparently read "third nucleation sites" since the second ceramic barrier layer comprises second nucleation sites. Appropriate correction is required.

4. Claim 27 objected to because of the following informalities: Line 1 of claim 27 recites "forming an encapsulating" and should apparently read "forming an encapsulation comprises". Appropriate correction is required.

Art Unit: 1792

5. The disclosure is objected to because of the following informalities: Page 6, lines 18-21 recite "fourth ceramic barrier layer" and "fifth ceramic barrier layer" and should apparently read "third ceramic barrier layer" and "fourth ceramic barrier layer" if the ceramic barrier layers are counted in succession.

Appropriate correction/clarification is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 6, 7, 10-15, and 17-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Graff et al (US 2003/0203210 A1).

Graff teaches barrier coatings and methods of making the same.

Specifically, for claim 1, Graff teaches depositing at least one ply of an aluminum oxide onto the substrate, followed by a plasma treatment (i.e. forming a first ceramic barrier layer on a substrate, wherein the first ceramic barrier layer has a first surface and a second surface and the first surface is closer to the substrate than the second surface; modifying at least a portion of the second surface of the first ceramic barrier layer to introduce first nucleation sites on the second

surface) [0088].

Furthermore, Graff teaches forming a second ply of an inorganic material over the first plasma treated inorganic layer (i.e. forming a second ceramic barrier layer on the first ceramic barrier layer, wherein the second ceramic barrier layer is initiated at the first nucleation sites) [0024]. Inorganic materials suitable for forming one or more plies of the barrier layers comprise silicon oxide and aluminum oxide [0043].

For claims 2 and 3, Graff teaches chemical modification by the use of a plasma treatment ([0065], [0073], and [0088]).

For claims 6, 7, 10, and 11, Graff teaches multi-ply barrier layers that may comprise metal nitrides and metal oxides such as titanium oxide and tantalum oxide, (i.e. applying material with a critical nucleus of one molecule) [0043]. Furthermore, as multiple plies are deposited, the very first trace of the metal oxide or nitride hitting the surface of the ceramic barrier layer would inherently form a nucleation promoting material on at least a portion of a previously deposited ceramic layer.

Regarding claims 12-15 and 17, Graff teaches forming first and second ceramic barrier layers comprising aluminum oxide and silicon nitride, and may be deposited by chemical vapor deposition ([0043], [0071]).

As per claim 18, Graff discloses the use of a flexible transparent substrate [0040].

Regarding claim 19, Graff teaches modifying at least a portion of the

Art Unit: 1792

second surface to introduce second nucleation sites on the second surface of the second ceramic barrier layer; and forming a third ceramic barrier layer on the second ceramic barrier layer, wherein the third ceramic barrier layer is inherently initiated at the second nucleation sites ([0023]—[0024]).

For claims 20-23, Graff teaches the barrier layers (i.e. first and second ceramic barrier layers) may have a thickness ranging from 50-500 angstrom (i.e. 5-50 nm and within the claimed range) [0021].

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (US 2003/0203210 A1).

Graff teaches barrier coatings and methods of making the same. Specifically, for claims 24 and 25, Graff teaches forming an environmentally sensitive display device 50 (i.e. OLED) on top isolation layer/ceramic barrier layer 42 by: forming a first electrically conductive layer on the isolation barrier layer 42; forming a functional organic layer 50 on the first electrically conductive layer 52; and forming a second electrically conductive layer 54 on the functional organic layer (see fig. 1b, [0063]). Graff does not explicitly teach forming the organic electrical device on the second ceramic barrier layer; however, it would have been within the level of ordinary skill in the art at the time of the invention to vary the number of barrier layers on the substrate in order to effectively guard against atmospheric contaminants without hindering the overall size of the device.

As per claim 26, Graff teaches forming an encapsulation 56 over the second electrically conductive layer such that the functional organic layer is sealed from the environment by said encapsulation (see fig. 1b; [0063]).

10. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (US 2003/0203210 A1), as applied to claim 26 above, and further in view of Graff et al. (US 6,522,067 B1).

Graff '210 teaches forming multiple ceramic layers/plies (i.e. third and fourth ceramic barrier layers) wherein at least one layer is plasma treated (i.e. modifying a second surface of a third ceramic barrier layer to introduce second nucleation sites on

the surface of the third ceramic barrier layer). Graff '210, however, does not explicitly disclose an encapsulation comprising ceramic barrier layers.

Graff '067 teaches an encapsulated organic light emitting device whereby the barrier stacks 270 and 130 encapsulate the electrically conductive layer/functional organic layer and is comprised of several ceramic barrier layers in order to provide enhanced barrier protection (see fig. 2, col. 3, lines 32-48; col. 4, lines 8-30; col. 5, lines 29-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include Graff '067's ceramic barrier containing encapsulation in Graff '210's method in order to provide enhanced barrier protection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis P. Smith whose telephone number is (571) 270-3717. The examiner can normally be reached on Monday through Thursday 7:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mikhail Kornakov can be reached on (571) 272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1792

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FPS

/Michael Kornakov/
Supervisory Patent Examiner, Art Unit 1792